Journal of Forensic and Legal Medicine 20 (2013) 117–118

Contents lists available at SciVerse ScienceDirect

Journal of Forensic and Legal Medicine

journal homepage: www.elsevier.com/locate/jflm

Case report

Lethal fish hook attachment – An unusual occurrence

Roger W. Byard MD Forensic Pathologist *

School of Medical Sciences, Level 3 Medical School North Building, The University of Adelaide, Frome Road, Adelaide 5005, SA, Australia

ARTICLE INFO

Article history:
Received 14 March 2012
Accepted 30 May 2012
Available online 17 June 2012

Keywords:
Fishing
Hook
Entanglement
Fatality
Mortality
Death

ABSTRACT

A 39-year-old fisherman is reported who was dragged into the water from a boat after he became entangled in fishing line. His death was attributed to salt water drowning. At autopsy the cause of death was confirmed and the mechanism of the lethal event elucidated. Specifically, a large fish hook attached to line was embedded in his right wrist. The hook had passed beneath flexor tendons and had firmly attached him to fishing line that was being dropped from the vessel. There were no other significant injuries or underlying diseases present. This case demonstrates another rare situation in the commercial fishing industry that may result in a victim being dragged from a boat and drowned.

1. Introduction

Commercial fishing is recognised as having a high injury and mortality rate compared to other occupations.[1] Given that operations are often conducted in small craft operating in dangerous waters this is perhaps not surprising. The major causes of death are drowning that occurs after a victim has been washed overboard or a vessels sinks, or blunt trauma from equipment that is used on deck to place and retrieve nets and fishing lines.[2] A case is reported to illustrate an unusual fatal mechanism that involved the victim being pulled overboard by a fishing line that was attached to an embedded hook.

2. Case report

A 39-year-old fisherman drowned when he was dragged into the water from a fishing boat after he became entangled in fishing line. At autopsy the most significant finding was a large fish hook attached to line that was embedded in his right wrist (Fig. 1). The hook had pierced the wrist at the base of the thenar eminence, and had passed beneath flexor tendons to emerge in the anterior aspect of the wrist medial to the tendon of flexor pollicus longus. The only other injuries identified were minor abrasions of the legs, head and face. The lungs were markedly congested with a small amount of frothy fluid present within the larynx, trachea and bronchi. No significant underlying organic diseases were present which could have caused or contributed to death. Death was, therefore, attributed to salt water drowning.

3. Discussion

Life threatening injuries in the commercial fishing industry are well recognised and have been reported from many countries, with a British study showing that the fatality rate for commercial fishermen was 115 times that of the general workforce, and four times that of the next most dangerous work, that of stevedores and dockers.[1] An earlier report from Australia showed the risk of death to be 18 times higher than the general workforce, and much higher than in either mining or agriculture.[3] Most deaths are due to drowning/hypothermia, trauma or asphyxiation, with drowning/hypothermia accounting for 70% of cases in a report from Alaska.[2] In this study 32% of cases involved being dragged overboard after entanglement in either nets or lines.

The risk of death varies with the type of fishing, as different equipment and craft design are required for specific species. For example, herring and shellfish boats have the highest rates of lethal injuries.[2] While adverse weather conditions are responsible for a number of cases of vessel loss, badly maintained and unseaworthy vessels have been increasingly involved in fatalities.[1] As in other industries, the use of old and poorly maintained equipment may lead to both fatal or serious but non-fatal accidents.[4]

The reported case demonstrates an unusual lethal mechanism with the decedent being caught by a large fish hook that had pierced his right wrist and run beneath flexor tendons. This had effectively attached him to a fishing line that was being run from

* Tel.: +61 8 8226 7700; fax: +61 98 8226 7777.
E-mail address: roger.byard@sa.gov.au.

1752-928X/$ – see front matter © 2012 Elsevier Ltd and Faculty of Forensic and Legal Medicine. All rights reserved.
http://dx.doi.org/10.1016/j.jflm.2012.05.011

Fig. 1. A large steel hook attached to fishing line and firmly embedded in the right wrist of the decedent.

the vessel, and pulled him overboard and underwater. While most fishermen who are dragged overboard have had their limbs entangled in lines or nets, on occasion this may involve the neck, with death resulting from a combination of immersion and neck compression.[5] Lethal consequences of fish hooks are more often found within the veterinary literature and involve cases of sea bird or mammal impalement, entanglement with fishing line or ingestion with gut perforation.[6]

Several problems arise in the forensic evaluation of fishing industry deaths. If a crew member has been washed overboard in rough weather and far out at sea there is no guarantee that the body will be found. Even if the body is located, the diagnosis of drowning is one of exclusion[7] which may be confounded by extensive injuries sustained during the terminal event and after death. The time spent immersed may also be associated with marked putrefactive changes and animal predation, both of which complicate identification and post mortem evaluation.[8,9] It is, however, surprising how long tissues may remain intact to enable successful DNA identification. This occurred in a 52-year-old prawn fisherman who had been swept off a boat in the Great Australian Bight. Over a decade later his skeletonized feet in rubber boots were dredged up by a trawler from a depth of 145 m. The integrity of the tissue DNA had been preserved by the cold temperatures, alkaline pH and low light of the ocean floor.[10]

The description of the event and the unequivocal autopsy findings in the present case fortunately enabled a definitive determination of the nature of the lethal event to be made. The case demonstrates yet another rare work place danger that may be encountered in small craft commercial fishing.

Ethical approval
Not required.

Funding
None.

Conflicts of interest
None.

Acknowledgement

Dr P Hodge is thanked for performing the autopsy.

References

1. Roberts SE. Britain's most hazardous occupation: commercial fishing. *Accid Anal Prev* 2010;**42**:44–9.
2. Thomas TK, Lincoln JM, Husberg BJ, Conway GA. Is it safe on deck? Fatal and non-fatal workplace injuries among Alaskan commercial fishermen. *Am J Ind Med* 2001;**40**:693–702.
3. Driscoll TR, Ansari G, Harrison JE, Frommer MS, Ruck EA. Traumatic work related fatalities in commercial fishermen in Australia. *Occup Environ Med* 1994;**51**:612–6.
4. Byard RW, Gilbert J, Lipsett J, James RA. Farm and tractor-related fatalities in children in South Australia. *J Paediatr Child Health* 1998;**34**:139–41.
5. Kiani SH, Simes DC. Delayed bilateral internal carotid artery thrombosis following accidental strangulation. *Brit J Anaesthes* 2000;**84**:521–4.
6. Carapetis E, Machado A, Byard RW. Lethal consequences of ingested foreign material in seabirds. *Forensic Sci Med Pathol* 2010;**6**:242–3.
7. Byard RW, Cains G, Tsokos M. Haemolytic staining of the intima of the aortic root – a useful pathological marker of fresh water drowning? *J Clin Forensic Med* 2006;**12**:125–8.
8. Byard RW, Riches KJ, James RA. Recovery of human remains after shark attack. *Am J Forensic Med Pathol* 2006;**27**:256–9.
9. Byard RW, James RA, Gilbert JD. Diagnostic problems associated with cadaveric trauma from animal activity. *Am J Forensic Med Pathol* 2002;**23**:238–44.
10. Byard RW, Simpson E, Both K. The identification of submerged skeletonised remains. *Am J Forensic Med Pathol* 2008;**29**:69–71.